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basket with a mineral color, shading from a deep tone at the bottom to a pale tint at the top, and lay around the top a valance of felt or billiard cloth, pinked at the lower edge and enriched with Kensington, outline, or arabesque embroidery, and trimming it with ribbon bows as your taste may suggest. These baskets would be improved by an interlining of thin cotton wadding.

DECORATIVE COMPOSITION.

Translated from the French of HENRI MAYEUX, Architect to the French Government. and Professor of Decorative Art in the Municipal Schools of Paris.

VI.—Gold and Silver.

GOLD is distributed in many portions of the globe. It exists in England and Wales, but only in small quantities. Gold has been accepted by most nations as the embodiment of wealth, and its qualities can hardly be over-estimated. Few chemicals act on it; it does not tarnish or alter by melting and recasting, and the beauty and splendor of its color have been universally felt; it is portable and so ductile that it can be beaten out to almost the consistency of tissue paper. The art of beating out gold into thin leaves is not a modern invention. Pliny states that in his time "one ounce could be stretched out into seven hundred and fifty leaves four fingers square."

In order to enhance the natural glitter of gold and silver, artists, at a very early period, introduced precious stones, pearls, crystals, etc., into their work. The stones were not cut into facets as they are in the present day, but ground down with as much symmetry as their natural shape would allow.

Among the oldest examples of gold work none are so remarkable as the collection found in a tomb at Thebes, including a gold dagger, a diadem, a square brooch set with colored stones, a bracelet ornamented with raised figures, a boat of massive gold, etc., of about 1500 B. C.

We read that the temple of Belus, in Babylon, had a golden image of colossal size, and that the throne and table which stood in the porch were also of gold. It is probable that similar works were only plated on a wooden frame; that this was the case with the statue of Pallas-Athene, by Pheidias, which stood in the Parthenon, we know from the testimony of Pausanias, who saw it in place. The Greek and Etruscan artists set great store on the color of gold, which they were loth to hide with enamel; hence specimens of this work are very scarce in our museums. Allusions to wrought and raised work abound in all classic writers; the beautiful description of the shield of Achilles presented to Thetis by Vulcan, "the divine artificer," will be remembered by readers of Homer.

The "Treasure of Hildesheim," in the Berlin Museum, is one of the most important collections of Roman gold and silver handicraft. It consists of cups, vases, dishes, a tray, and other pieces for a dining-table, many of them of beautiful design and execution. It was unearthed in 1808.

Precious stones have been associated in all ages with the East. "From India," says Sir H. Layard, "precious stones were probably supplied to Babylon and Ninevah." The wealth of the jeweled gems, of the gold and silver, set forth in "The Thousand and One Nights," belonged to the East; whence also the fleets of Solomon and Hiram brought, among other rare things, "precious stones." "In Byzantium," says Labarte, "gold, silver, pearls and precious stones were scattered about with a profusion which surpasses imagination."

The Middle Ages abound in work of silver and gold or copper gilt, both pierced, chased, enameled or set with precious stones, such as châsses, pyxes, book mountings, croziers, church and other plate, candlesticks, etc., characterized by profusion of ornament and skillful manipulation.

Among the most interesting examples of English work of this period may be mentioned the coronation spoon kept in the Tower of the thirteenth century; the Ampulla, or dove, also used at the coronation, and probably a reproduction of an earlier piece; and last, not least, the beautiful Lynn Cup, cir. 1350, of silver gilt and translucent enamel, belonging to the corporation of that town.

With the Renaissance, in Italy, in France, in Germany, and in England, metal works admirable in every respect were produced, exhibiting an infinite variety of designs of every size and magnificence. Many painters, sculptors and architects of this period had begun their career, like Pheidias, as goldsmiths.

Remarkable specimens of English plate, both ecclesiastical and secular, ranging from the thirteenth century almost to the present day, are to be seen in the South Kensington Collection, in the Colleges of our Universities, in many churches and private houses, such as chalices, dishes, kettles, cups or hanaps, Fig. 199.

Enamel, as we have seen, was known to the Byzantine artists, but this kind of decoration was of Asiatic origin, and introduced with great splendor and effect in the work of the Lower Empire. The Egyptians, Assyrians, Greeks and Etruscans all used gilding on metals, wood, masonry and marble.

We know of little or nothing of the methods of the old Greek and Etruscan artists to separate and join pieces at once so fine and minute as to be invisible to the naked eye, nor of their mode of melting, soldering and wire-drawing in their filigree and granulated work.

Signor Castellani, after infinite pains to discover the ancient mode of working the delicate ornaments found in the tombs of Greece and Etruria, succeeded at last in producing brooches, bracelets and ear-rings, rivaling their models in elegance and manipulation, Figs. 20. and 202.

The method for working precious metals is the same as that employed for bronze, iron, brass, etc. With this difference, that as their character is purely decorative, they will not be put to hard uses, but, on the contrary, will be preserved with great care. Consequently their chief characteristics should not be solidity and massiveness, as is too often the case with modern ornaments, wherein the greatest amount of metal seems to be the main object. They should rather be distinguished by freedom, elegance of design and delicacy of workmanship, especially when sheels, pearls, gems and precious stones are studded about the work as points and sparkles of effulgent coloring and effectiveness, either to represent foliage, flowers or animal forms, as seen in Fig. 203.

Even simple designs, such as bracelets, are often spoiled through being made too thick and heavy, unrelieved by decoration, and more appropriate to house furniture than to adorn the wrist of a lady. Our Fig. 205 shows that the same object, varied by a simple design, be it nielling or enamel, will at once raise its standard from an artistic point of view.

It may be urged that such is the fashion, but if fashion is bad why not alter it? Reference to the models handed down from the best periods of art is within reach of every one who will take the trouble to visit our stupendous public collections; and if the designs and forms cannot be styled "the latest thing out," that does not necessarily detract from their intrinsic value.

Do we complain because nature reproduces as surely as the spring comes around exactly the same forms and the same tints in the vegetable and animal kingdoms? Are we not ready to welcome the ever-recurring snow-drop, the simple primrose, and the no less simple but sweet-scented violet, as well as the more brilliant galaxy of their gorgeous sisters, and the wealth of leaf and foliage?

In conclusion, we may remark that the art of cutting, polishing and fashioning precious stones has reached such perfection that all their elements of beauty may now be developed to the utmost.

VIII.—Metal Engraving, Stone Engraving, Nielling, Damascening and Sgrafitto.

Engraving is executed by means of tools of various sizes, the points being flat or rounded. Metal engraving is treated exactly like common engraving; the outline of the design is traced on the metal, then cut to the required depth with a graver, and the ground is matted or cut in light parallel or cross lines. But although the process is the same, the result is widely different. Thus, while the common engraver strives to reproduce as faithfully as possible the tones, the exact modeling, the texture and variety of the minutest details of the original picture, the decorative engraver will proceed by bold cutting of the general masses, contenting himself with bringing out the general shapes of the outline.

Stippling cannot well be too simple, either when introduced in the background or to shade the half tints of the form. Designs, it should be recollected, may be applied to inwrought or inversely to plain grounds, the ornament appearing matted or bright cut, Fig. 206.

As the outlines of graven forms lack precision, color was added in very early times to the incised lines to remedy this, and thus give rise to the charming and effective art of *nielling*, which consists of a compound of silver, lead, sulphur and copper, made into a powder and passed through the furnace, forming a dark-colored paste carefully laid into the lines of the engraving, and yielding a pleasing contrast with the bright color of the silver. The aspect of *niello* is that of an engraving.

Mention has already been made of the metal engraving of the nations bordering on the Mediterranean, but a word should be said upon the elaborate ornamentation, the wealth of engraving, of nielling and incrustation of Indian metal work, Fig. 207, its magnificence recalling the glowing descriptions of the ancient poet. Nor should the artists of the Renaissance be left unnoticed, for they too were lavish in their use of nielling as a mode of decorating precious metals, Fig. 208.

Damascening is the art of inlaying or incrusting one metal

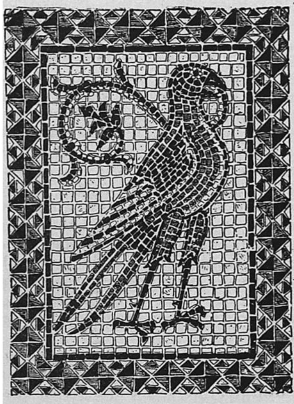


Fig. 222.—Elaborate Mosaic.

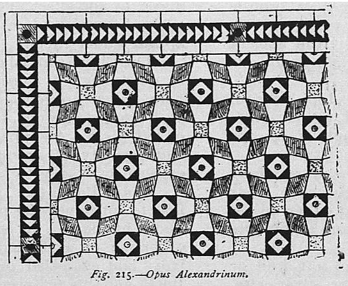


Fig. 215.—Opus Alexandrinum.

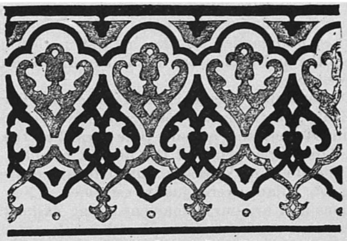


Fig 216.—Saracenic Pavement.

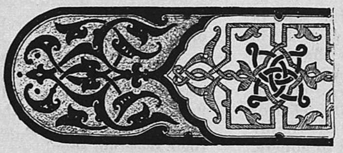


Fig. 207.—Indian Engraved Metal Work.

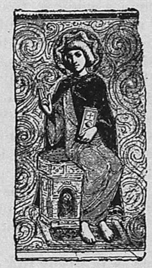
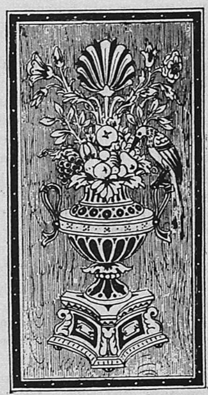


Fig. 219.—Repoussé Enamel.



213.—Figured Inlay Work.

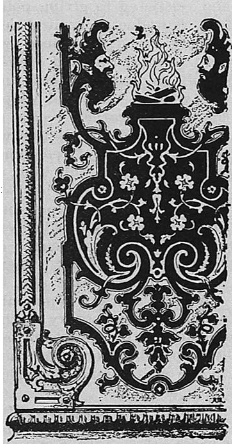


Fig. 214.—Buhl Encrusted Work

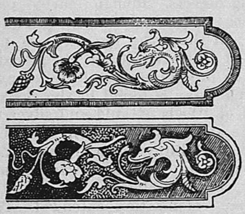


Fig. 206.—Engraved Metal.

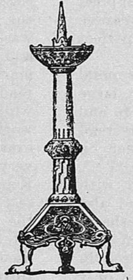


Fig. 220.—Cloisonné and Champlevé Enamel.

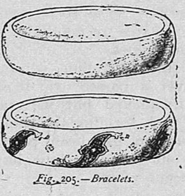


Fig. 205.—Bracelets.

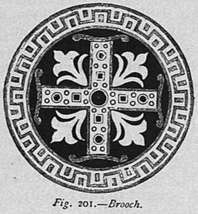
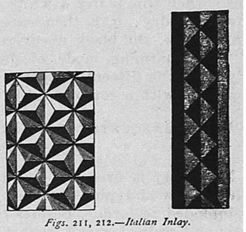


Fig. 201.—Brooch.



Figs. 211, 212.—Italian Inlay.

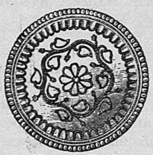


Fig. 202.—Brooch.

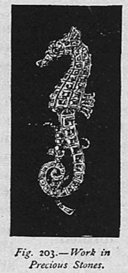


Fig. 203.—Work in Precious Stones.

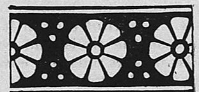


Fig 221.—Mosaic.
Light and Dark Colours Contrasted.

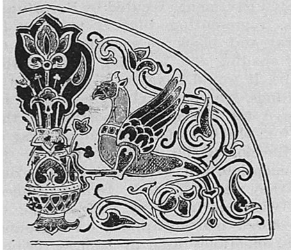


Fig 218.—Champlevé Enamel.

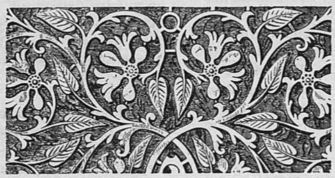


Fig. 209.—Perso-Italian Damascened Work.

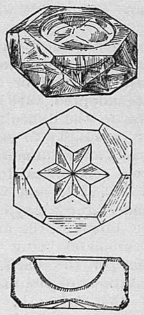


Fig. 226.—Polygonal Salt-cellar.

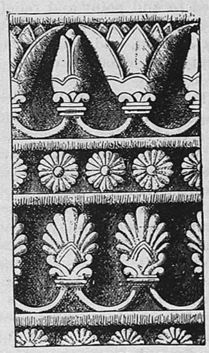


Fig. 223 —Assyrian Mosaic Pavement.

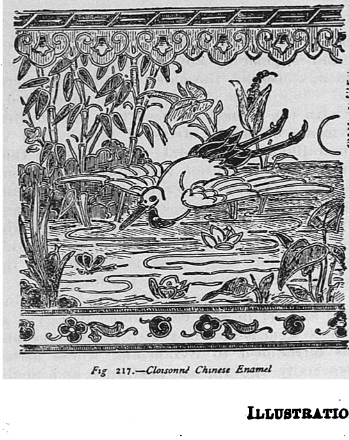


Fig 217.—Cloisonné Chinese Enamel

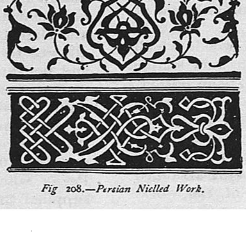


Fig 208.—Persian Niello Work.

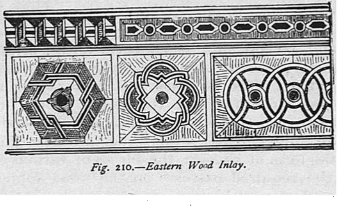


Fig. 210.—Eastern Wood Inlay.

ILLUSTRATIONS TO DECORATIVE COMPOSITION, BY HENRI MAYEUX.

upon another. It is generally done with gold and sometimes silver leaf or wire laid on the surface of iron, steel, or bronze. This system derives its name from Damascus, where it was practised and carried to the highest perfection by the ancient goldsmiths and armourers in the manufacture of their ornaments and weapons.

Damascening was early introduced in Persia, India, Spain, and Italy; in the latter country the workshops of the *azzimisti* (colonized Persians) at one time furnished the whole of Europe with damascened work of the highest quality, Fig. 209.

The steels of Venice in the sixteenth century, and especially those of Milan, were justly esteemed. Not only were their weapons and armour damascened, but caskets and other pieces of furniture were ornamented with *niello*, enamel and arabesques of great delicacy and purity of design.

The damascening consists in cutting (intaglio) soft iron or steel, and filling the lines thus made with gold or silver wire, which to be effective must be of a certain thickness. The engraving must be executed in such a manner that the sides of the lines are overhanging, the wire being carefully fastened in position or beaten with a hammer; when this is done the whole surface is gone over and polished. Another scheme equally effective and lasting is obtained by inserting small strips of gold in lines cut in steel or iron, and decorating these with relief or incised forms. Damascening may also be achieved by simply laying the gold leaf on the metal plate and causing it to adhere. Such work, however, is not durable, as the gold leaf is apt to get loose or otherwise to wear off.

Of late the new process of galvanoplasty has been applied to engraving with charming result. A reproduction of Japanese encrusted damascening has been obtained so smooth and perfect as to verge on monotony.

Engraving on stone or marble is precisely the same as metal engraving, with this difference, that as it is practised on large surfaces the treatment should be simple, as befits the gouge and chisel, the lines broad and characteristic, so as to be easily read at a certain distance. Adherence to this principle is seen on most mediæval and Renaissance tombstones.

*Sgraffitto** is obtained by an inlay of lime colored with black; when this is dry a white layer is passed over it and also allowed to dry; it is then carefully picked out with a sharp-pointed style, the black uncovered lines forming the design.

This charming mode of decoration has been practised in Italy since the fifteenth century; but other nations have only adopted it within comparatively recent years.

VIII.—MARQUETRY AND INLAID WORK, MOSAIC, AND COLORED PLASTER.

Marquetry is executed by means of thin pieces of wood cut with the saw and put together, or glued in the patterns they are intended to form. Besides the endles variety of indigenous, exotic and stained woods, materials such as ivory, bone, tortoise-shell, mother-of-pearl, brass wire and other metals, are introduced to add point and relief, which may be increased by brazing and chemical processes, toning down certain portions until they are lost, and heightening others so as to obtain as much variety and effectiveness as are compatible with the materials employed.

It is self-evident that with such elements the nature of the composition must be restricted to geometrical designs formed from the square, the circle, the polygon or stellate in shape, and if curvilinear patterns are adopted, care should be had to avoid angles too acute; because to the difficulties of fabrication would be added a disagreeable possibility to part and split.

Venice and the East generally afford numerous and beautiful examples of wood inlay, wherein geometrical forms are the sole elements of decoration, Figs. 210, 211, and 212. But flowers, foliage, fruit, animals and human figures may be introduced into inlaid wood-work. In this case, however, the artist must remember that the resources at his command being confined to a few flat tints, and engraving some of the parts, his composition should be well within the limitations of the materials employed. The figured compositions of the sixteenth, seventeenth, and eighteenth centuries may serve as models for this kind of work, Fig. 213. It is clear that landscapes and architectural buildings, sometimes seen in Italian and Flemish wood inlay, are incongruous. Similar compositions are of necessity incomplete and at variance with a flat treatment.

Parquetry, or floor-covering, is executed in hard woods which should be cut into geometrical forms, arranged in very simple patterns; a more elaborate design being reserved for the border, Fig. 210. This becomes inlaid work when woods of various shapes and colors form the design. Another kind of parquetry has been introduced in this country, consisting of patterns glued down upon canvas. Fine woods are now almost exclusively used in the form of veneers, the pieces of various colors being arranged in the required patterns on the wood foundation of the work. The effect may be increased by hand-painting, gilding the edges, mouldings and the like. But if veneers may be rightly introduced to add effect and variety, their use ceases to be legitimate when beautiful pieces of oak or walnut furniture entirely disappear under them.

The Chinese and Japanese marquetry is exceedingly decorative in character; it consists of an inlay of ivory, mother-of-pearl, jade, china, precious stones and metals slightly raised or sunk on a ground of wood, lacquer or marble, which may be inwrought or left plain. A similar mode of decoration requires great skill and subtlety of arrangement, owing to the easy descent from extreme brilliancy to tawdriness and vulgarity.

André Boule (or "Buhl," in England), born in 1642, was the first to introduce the pecular form of veneered work which goes under his name. It is composed of tortoiseshell and thin sheets of brass; or shell and copper, to which are sometimes added ivory and enameled or precious metals. The plates applied by Boule and his followers to ornamental furniture form the ground-work and the design alternately; the surface being richly decorated, its metallic parts chased, raised or embossed with pieces of metal ornament, Fig. 214.

The almost endless variety of colored marbles have been and are used by the Italians, especially of Rome and Florence,* to decorate architecture and furniture. Their naturally rich effect may be heightened by the introduction of semi-precious stones, such as jasper, agate onyx, lapis-lazuli, bloodstone, etc. But their selection should be judicious and restricted to giving point and relief, without aiming at faithfully reproducing natural and living objects. Roman marble pavements are divided into two classes. The "tesselated," from *tessera*, small cube, and *sectile*, cut. Of these the tesselated is probably the most ancient, and was at first arranged in chequered patterns of black and white, and in process of time in different colors. The earliest record of marble inlay is found in the Book of Esther, 450 B. C., where we read of "beds of gold and silver upon a pavement of red, blue, white and black (marble)." The Greeks excelled in this kind of work, and Pliny naturally ascribes its origin to them. The best examples of tesselated work occur at Pompeii and Rome; but very fine specimens are found in England, and wherever Roman colonization extended. The most beautiful specimen of sectile pavement is seen in the Pantheon at Rome, 30 B. C., where the principle marbles are arranged, each of considerable size, in alternate round and square slabs. A third variety commonly used in Italian churches from the fourth or fifth century to the thirteenth, is called "Opus Alexandrium." It consists of an arrangement of small cubes, generally of porphyry or serpentine, composing geometrical designs, cut in the white or black marble slabs, Fig. 215.

It is the direct forerunner of the richer and more beautiful curvilinear designs and arabesques of the Saracens, Fig. 216, who knew how to unite excellence of form to the sense of flatness essential in a surface destined to be trodden upon. This principle is set at nought in the celebrated pavement executed by Beccafumi, for the cathedral of Siena, representing biblical subjects in colored marbles of white, gray and black; a certain amount of modelling being obtained by shading and hatching some of the parts. Beautiful though it be, it would have been more appropriate on the walls and ceilings, where everybody could see it, whilst now it must be covered for the greater portion of the year in order to protect it from the feet of the visitors. Near it are also compositions by Duccio, which, though inferior to Beccafumi's in style and conception, are more fitting the place and surroundings for which they were executed. Indian palaces, too, are generally enriched with marble inlay and carving of exquisite ornament, whilst colored plaster, applied on a ground of stone or other plaster, is sometimes used in floor covering; but as few mineral colors will combine with lime, the designs must of necessity be very simple and strictly conventional.

IX—ENAMELS.

Enamel is a compound fused and vitrified by being passed through the furnace, and is generally applied to metal. Enamel may be either embedded, *cloisonné*, the oldest of all, *champlevé*, *translucent* and *painted*. Cloisonné enamel, also called "encrusted," is obtained by filling with the enamel, reduced to a fine powder, small cells formed by means of slender strips of metal fixed or welded on to a ground likewise of metal. The piece is then placed in a furnace, and when the fusion is complete each compartment appears set in thin bright wire, retaining the enamel and slightly raised upon the plate. It is then withdrawn and allowed to cool slowly; and when thoroughly cold it is ground and polished. The old artists are very careful in the preparation of their enamels, using none but the purest gold, so that the plate might not be injured from the action of the fire.

Cloisonné enamel must not be confused with glass or precious stones, carefully shaped and set in gold cells, found in Egypt as early as 2,000 B.C. This system is also met with in Assyria and Persia whence it was introduced to Byzantium, whose artists supplied the West, especially the Italian peninsula and Sicily, for hundreds of years with mosaic and inlay work, enriched with gold grounds and figures gorgeously draped in true Byzantine style.

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* Etching; literally, scratched work.

* Marble inlay is often improperly called "Florentine mosaic," but true mosaic is obtained by a totally different process. (*Vide* § X.)

In the embedded enamels of the Middle ages, the outline of each figure is formed by the thickness of the metallic wire. This form is also practiced by the Chinese, whose work, including animals, flowers, foliage, the rich plumage of birds, the metallic glitter of serpents' scales, undulating water, etc., are encircled in a bright rim, whatever their distance, Fig. 217.

In champlevé the cells for the reception of the enamel are sunk or cut by means of the graver in the plate, itself generally of copper. This process is much more laborious, and the design cannot be made as flowing as with the flexible gold wire. Champlevé is generally applied on large surfaces; intervening spaces may be left in the metal and afterwards engraved, forming a pleasing contrast with the enamelled designs, Fig 218.

Another form of embedded enamel, very soft and of charming effect, is obtained by placing two or three graduated tints of coloured enamel in the same cell. This, though satisfactory in small objects, cannot be applied to those of large dimensions, such as vases, basins, and the like.

There is a very subtle mode of decoration occasionally met with in mediæval work. The outline of the design is first carefully marked out; the portion composing the principal subject is struck up, bosses in the round, half or quarter-round being reserved for the high light such as the face, neck, hands, feet, etc., which receive a light flesh tint; rich colouring being applied to accessories, such as the tunic, mantle, and portions of the dress, whilst the sunken background is inwrought with a delicate network of monochrone floriated scrolls, Fig 219.

The enamelling now practised in England is modelled or moulded with ornaments and set on gold or other metal, and is almost identical with that of the Chinese.

Beautiful specimens of this style have been produced by our metal workers. The composition of the enamel is glass made of lead, sand, and borax, coloured by means of metallic oxides. The enamel can be rendered translucent or opaque at will. The varieties of colour exceed two hundred, and new acquisitions are made every day.

The working palette of an enamel artist is almost as rich as that of an aquarelist or oil painter, and well adapted to delicate designs, modelling of forms and fineness of detail. Nevertheless, it is well to remember that the best enamels produced in France during the reign of Francis I., under the influence of Benvenuto Cellini and other great Italian artists, were distinguished by sober, harmonious colouring, almost monochrome, of excellent effect.

Painted enamel is applied in successive layers over the whole surface of the metal plate, and decorated, as was noticed earlier, with fusible metallic oxides, The plate is then subjected to the furnace, when the colouring matter sinks into the subjacent paste. Enamels are sometimes covered with a thin transparent layer which lets in the light at the back, throwing up the whole colouring. Dark enamels may be "touched up," or outlined with a gold or silver rim. Enamels were painted by the Italians in the fourteenth century; at first exceedingly rudimentary, they improved in process of time, and reached their highest perfection at the hands of Penicaud, Courtois, and notably Léonard, surnamed Limousin, from Limoges, his birthplace, 1532—1574. The figures of Léonard are generally painted with bright hair and pink cheeks, standing out on a dark background. His high repute was shared by his countryman Raymond, whose works rank almost as high as his and fetch enormous prices.

A coarse kind of enamel on brass was made in England in the reign of Elizabeth; its colour is light and dark blue with white, the interstices being inlaid with a pattern in relief. Two candlesticks of this work are preserved in the South Kensington Museum, as well as a beautiful specimen of translucent enamel upon relief, marked Italian, *cir.* 1580; interesting from the fact that it seems to have been obtained by the process so minutely described by Benvenuto Cellini in his Memoirs.

Painted enamel applied on a surface previously struck up in relief corresponding with the designs, has almost the effect of an enamelled bas-relief; the mingled brilliancy of its rich blues, reds, greens, and yellows upon the shining metal is highly effective and pleasing.

The art of applying enamel to gold and silver was practised in China and India at a very early period, whence it passed into Assyria, Persia, probably Egypt and Europ The old Etruscans and Greeks used enamel to enrich their ornaments; and exquisite specimens have been found in their tombs, representing birds, doves, peacocks, flowers, and foliage executed with a degree of skill and dexterity, making it clear that the handicraft had long been in use. A fine collection is preserved in the British Museum.

Brooches, crosses, bracelets, rings, and the like have also been found in England and Ireland, showing that the art was known during the Roman occupation, if not before.

Enamel was applied from the tenth to the sixteenth century to all manner of things, such as armour, caskets, candlesticks, ewers, basins, croziers, book-covers, rings, etc. In the present day vases, chalices, châsses, flagons, candelabra, and jewelry are so enriched.

Of enamels applied to glass or made to imitate jewelry and precious stones, the earliest and best examples that have been preserved are a blue cup, enamelled and gilt, in the Murano collection, *cir.* 1440, and two fine pieces in the British Museum.

The value of enamels as a means of decoration has been felt from the earliest ages by every civilized nation; but, however beautiful, its adoption should be confined to designs and "fillings," leaving the metal foundation very spparent This is what makes cloisonné and incised enamels so satisfactory, wherein the forms are introduced upon a plain metallic ground; on the other hand, had they extended over the whole surface, the sharp outline would have been destroyed, and with it much of its effectiveness, Fig. 220.

Unfortunately, these enamels are only for the wealthy, for they involve great expenditure of skillful and patient labor; on the other hand, ample opportunity to study them and to compare the various methods by which they are achieved are offered to the student in the rich collection of Eastern and European art enamel, preserved in the South Kensington and in the British Museums.

X—Marble Mosaic and Enamelled Mosaic.

Marble mosaic is the art of putting together small cubes varying in size and colour, so as to produce a design, care being taken to fill the joints with cement in order to obtain a smooth surface. In good fine work these joints are not seen even with the magnifying glass.

Old Roman mosaic is entirely composed of hard substances, as opposed to Byzantine and Venetian mosaic, formed of small pieces of plain or enamelled glass, usually set in gold, sometimes covered with it;* which superseded the former from the fourth century, and was introduced in the decoration of churches and the houses of the wealthy. Roman mosaics are divided by a learned authority into tesselated and sectile, applied to pavements generally; fictile and vermiculated or pictorial, applied to walls and ceilings. Fictile mosaic is formed of a compound of silex and alumnia, coloured by metallic oxides and cut to the required size to form the design of a picture.† This material offered many advantages; it could be obtained of any variety of colour and form, and was far less costly than the precious marbles. Hence its popularity with the Romans from the earliest times in decorating their houses with it.

The best specimens of glass mosaic are found in St. Sophia at Constantinople, Sta. Maria Maggiore at Rome, St. Vital at Ravenna (some time the seat of the Western Empire), St. Marc in Venice, and the Cathedral of Moscow. A very fine specimen of this work, 1270, decorating the tomb of Edward the Confessor, is preserved in Westminster Abby.

The mode of execution of this kind of mosaic is generally large and coarse; the cubes are irregular in shape and divided by very apparent joints, wholly inappropriate to subtle modelling and pictorial treatment. "Yet," says Sir D. Wyatt, "the effect is splendid, luxurious, and solemn withal, and unattainable by any other means which have been employed in architectonic decoration."

The mosaics decorating the walls of St. Peter's at Rome date from the fifteenth century; they are copies of well-known pictures, which took years of patient labor and technical skill in their reproduction. The result, however, is scarcely satisfactory; the uneven and rugged surface being ill adapted to represent the fine texture, the variety of tones, and the half tints of an oil-painting. But whilst we condemn, we should remember that but for the durability of mosaic, no ancient pictorial work would be known to us; and that some of these very mosaics in St. Peter's are all that remains of paintings that have been destroyed, and which now we would only know from contemporary documents.

The examples of mosaics which have been preserved show an amazing variety of subjects, ranging from a broad, flat treatment outlined by a gold rim extending to the details, or vigorous modelling produced by the juxtaposition of dark and light colors, as red and white, or black and white, for example, well seen in our Fig. 221, to great delicacy of execution and softness in the shades and tints; when not only flowers, foliage, and wreaths, but even the animal and human form may be portrayed, Fig. 222, provided due regard is had to the material employed.

It is self-evident that the conception of mosaic pavements must differ from that of mosaics intended for walls or ceilings; and that a subject proper in a vertical position will be incongruous when transferred on a flat surface. The basis of all floor-coverings should be geometrical, and when floral or animal forms are introduced, their treatment should be flat and purely conventional as in Fig. 223, forming the border of an Assyrian pavement now in the British Museum.

The supposition of archæologists that Egypt was acquainted with mosaics has been placed beyond doubt by recent discoveries. In a temple built under the Ptolemies, *cir.* 160 B. C., were found

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* The tesseræ found at Pompeii are covered with gold.

† The small enamelled cubes used in this work are called "smalto" by the Italians.

"walls covered with encaustic tiles and bricks, of beautiful workmanship, the hieroglyphs in some being *inlaid in glass.* The capitals and cornice were inlaid with brilliantly colored mosaics."*

Mosaics have of late years been made in France and in this country, where their rich warm coloring is well calculated to enliven our gloomy skies.

XI.—BLOWN, CUT, ENGRAVED AND ENAMELLED GLASS.

The art of making glass is of very ancient date; glass bottles are seen on Egyptian monuments more than four thousand years old; whilst paintings of the same period exhibit the glass-blowing process. A glass bead has been found in an Egyptian tomb, with inscription and date, *cir.* 1500 B. C., and a glass vase unearthed at Ninevah, and now in the British Museum, bears the date 700 B. C.; On the other hand, ancient writers describe statues, obelisks, and other large pieces which must have been made of glass. Glass was known to the Phœnicians, who carried their own and Egyptian art into every country bordering on the Mediterranean. The small vases that have been discovered in Etruscan and Greek tombs bear a strong resemblance to one another, both in form and color; the ground is usually blue, ornamented by white, yellow or light blue zigzag lines; a form of ornamentation also observed on the pottery brought to light by Dr. Schliemann at Hissarlic, in the Troad.

Glass has been found in windows at Pompeii, and Pliny enumerates opaque, red, white, and black glass made in his time. Glass, imitating precious stones, or brightly iridescent like the inside of a shell, coated glass, that is, composed of different colors, and treated like a cameo, was practised by the Romans. The most remarkable example of this kind of work is the Portland vase, found in a sarcophagus in Rome and now in the British Museum, where the student can observe it.

The system has been revived in Italy, in Germany, and notably in Bohemia, where coated glass pieces are decorated with landscapes, flowers, and foliage, displaying admirable skill in manipulation, but utterly devoid of decorative character.

The glass-maker is obliged to work at such enormous speed that a drawing would be superfluous, and he must be ready to seize the moment when the material is soft and malleable and easily reduced into shape. Hence the blending of colors and the ultimate form are dependent upon his taste, quickness of eye, and dexterity of finger. Accessories, such as handles, volutes, spirals, dots, beads, figures, flowers and every conceivable device are added or soldered on the vessel afterwards.

Glass blowing admits of beautiful curved forms and tenuity of substance; these forms and this character are seen in old Venetian specimens, Fig. 224. Colourless transparent glass is generally used for drinking purposes; it is quite plain or with a simple rim; but show pieces are treated with the greatest freedom both as regards design and colouring. Venetian glass, may be divided into colourless vessels, which are frequently decorated with coloured glass, laid on externally on the body and on the stem of the vessel; glass of single colours of blue or purple mixed before they are worked; gilt and enamelled glass, only suitable for pieces of a certain thickness, such as tazze, bowls and the like—the oldest specimen of this kind of glass known in Europe was manufactured in Venice during the fifteenth century; crackled glass, *i.e.* glass with a rough surface divided irregularly into ridges; variegated, or marbled opaque glass—the most common is a mixture of green and purple made to resemble precious stones; Aventurine glass obtained by mixing metallic filings, or fragments of gold-leaf, with melted glass. Millefiori, or mosaic glass, is an imitation, *longo intervallo*, of the fine old Roman process. Reticuled filigree or lace glass, wherein fine threads of coloured glass, sometimes milk-white, form the ornamentation, are among the most beautiful of the products of Murano.

Briefly stated the process is this: hollow rods enclosing threads of opaque or coloured glass, are placed side by side in a mould, and a thin bubble of glass blown into the midst so as to adhere to the canes; this done, the whole is once more heated and formed into a hollow cylinder, which is then fashioned after the manner of ordinary glass.

The earliest glass-making in England seems to have been about ths beginning of the reign of Elizabeth. Venetian glasses were made in London, under the supervision of Italian artificers, and the old mirrors met with in most country houses are of this period.

Modern Venetian glass, cut to imitate crystal and profusely ornamented, is an error of judgment; on a different scale and in a different way, so are those colossal vases which are made to imitate marble.

The art of wheel engraving upon glass was practised with great success in France. The designs are generally delicate and laid on the surface; but on rough, thick pieces, they are cut into the glass, the engraving or form showing right through. When greater variety is desired hatching is added as in metal engraving.

Cut glass should be of a certain degree of thickness, and may be divided into glass with plain surfaces, the easiest of all in manipulation, and glass with carved surfaces, *i.e.* cut in grooves, triangular flutings, chamfired edges, star focets, brilliant cut, etc.

A glass worker should possess some education for it is not enough to be able to produce a good drawing or an elegant shape, he must also understand the great and almost endless variety of plans and geometrical combinations that occur in Nature, both in precious stones, crystals, etc., and in the vegetable kingdom, in order to reproduce them with truth and feeling. Knowledge of these natural laws will preserve him against the common error of repeating the form in the same object, knowing that a multiplicty of its facets will interfere with one another and destroy the effect. This principle is well kept in view in Fig. 226, representing a polygonal salt-cellar, having a single star cut at the back, which is reflected on its face, and throughout the object.

Enameled Persian glass, Sassanid vases and the lamps seen in Mohammedan mosques, are generally cast in monochromes, or a greenish color, with touches of gold or silver thoroughly satisfactory.

Old Venetian, and notably German vessels, are likewise monochrome in character and ornamented with escutcheons, shields, armorial bearings, and every variety of device, drawn much skill and delicacy. Some good examples are in the British and South Kensington Museums.

We will end this study with a word of mention upon glass used by the goldsmith with metal mountings, either flat or in high relief. The association of the two materials is reasonable and legitimate, the hard substance supplying the more fragile with the much needed support, whether as light net, showing the transparent glass right through, circling a ring, necklet, girdle, etc., or as footing, handle, hilt, suspension hooks, and the like. But in order to obtain a decorative result, the metal must be distributed all over the work, so as to show the perfect agreement of the two materials.

Flint and crown glass, having lead as their basis, are extensively manufactured in this country. They are more substantial and not so costly as Venetian glass, which owes its lightness and strength to the absence of lead.

Rock crystal, found in abundance in Bohemia and Scotland, is cut like precious stones and belongs to jewelry. In glass candelabra, the effect of which will be seen at night, the worker should aim at reproducing the prismatic colors, the angles and plans most favorable to scintillation.

The fifteenth, sixteenth and seventeenth centuries, both in Spain, Italy, Germany, France, Austria and Poland, produced acmirable examples of glass mounted in gold or silver gilt, or on a metal plate as a foundation. The most remarkable specimen was executed in the reign of Louis XIII. for the chapel of St. Esprit, now in the Louvre collection. We know that colored glass was made in Byzantium and Rome, but owing to its brittleness few examples have come to us. The famous dish preserved in the Museum of Genoa, which was brought from Cæsarea in 1101 A. D., may be Byzantine glass, and probably also a bowl in the British Museum.

(TO BE CONTINUED.)

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* Bib. and Archæ. Rept., 1880.

THE AMERICAN IDEA.—In these days, when the desire to ape everything foreign has become a craze in some quarters, it is refreshing to meet and encourage any effort, great or small, that tends towards perpetuating an original American idea. This country is too great to copy after any other nation on the face of the earth. Immortality is never achieved by imitation. We must be original if we desire to be remembered by posterity, and not be aping British names or fashions or habits in what we say or wear or do. The individuality of the American people must assert itself not only in devotion to this country's institutions, but also in the development of ideas that are essentially American and that can never be anything else. The current issue of the DECORATOR AND FURNISHER contains an interesting article in line with this thought which we copy elsewhere, and in which is contained an offer of $100 by our townsman Colonel J. A. Price, to be awarded in three prizes of $50, $30 and $20 for designs showing the best adaptation of maize in the industrial and architectural arts. The splendid growth and graceful beauty of the maize is especially characteristic of this country, and there are abundant suggestions for the artist in the broad curves of its ample leaf, the substantial nature of its stalk, and the regularity of the full and ripened ear. The idea advanced by Colonel Price is a creditable one and all such thoughts and tendencies deserve the most liberal support and encouragement on the part of the press of this country. We have named towns and rivers enough after English towns and rivers to make an American of observation tired, and in the same way we have absorbed and adapted foreign thoughts and ideas in our architectural and other designs. Let us create "an American craze" now and see how it will work to our benefit. The suggestions contained in Colonel Price's offer open up a new field for the development of practical ideas that may become paying as well as patriotic, and we should be very much gratified to see more offers of the same sort. It was the same idea that prompted *The Truth* some time since to offer a prize for the words of an American sea-song, and the responses which have come from all parts of the United States show that it was a step in the right direction. The American idea is destined to be the grandest the world has witnessed. Let us all do whatever we can to hasten its development.—*Scranton Truth.*

READERS of this magazine need no introduction to Mr. George R. Halm to whose forcible pencil they have been indebted for many valuable suggestions. He announces that he is back at the old "den," No. 9 East 17th street, and solicits orders for designing, drawing, and all artistic work connected with the preparation and publication of books, catalogues, etc., etc., at the same time offering the advantages of his personal supervision of the work during the various stages of progress.